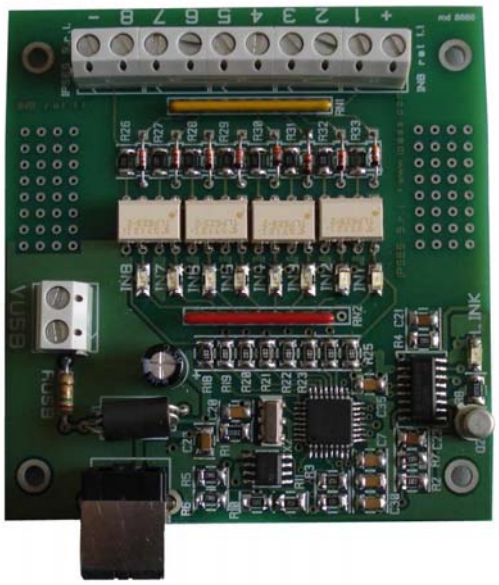
Control Unit IN8
USER MANUAL

Rel. 01.04.0001
(Hardware code: IN8)



CONCEIVING
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IN SCIENTIFIC
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ELECTRICAL DEVICES COULD DAMAGE EQUIPMENT OR PROPERTY OR CAUSE PERSONAL INJURY

This guide contains instructions and technical features of the Control Unit IN8.
Read with attention before attempting to install.
It is the responsibility of the technician to undertake all the safety rules provided by the law during the installation and the use of this device.
For any information which is not contained in this guide, please contact:

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REVISION HISTORY

Manual revision history

Revision/ Date	Change description	Author
01.00.0001 February, 2008	First version Released	Barbera D.
May, 2008	Second version Released	Mancuso C.
01.02.0000 April, 2009	Modified and integrated the Demo software description following the software upgrade with the S/N selection field. Modified the maximum input voltage range. Other minor upgrade	Rivolta A.
01.03.0000 February, 2010	Added an example of DLL D2XX and other I/O devices section. Added dimensions of the board in layout paragraph. Other minor changes	Zancanato A. Mancuso C.
01.04.0000 October, 2010	Added new driver installation paragraph. Added description of new log function in demo software	Mancuso C.
01.04.0001 June, 2015	Update document layout	Bottaccioli M.

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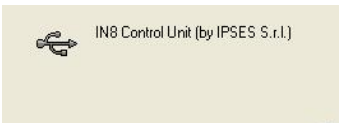
GENERAL FEATURES

IN8 is a low size (80 x 75 mm - 2,95 x 3,15 inches) auto powered control unit equipped with USB interface. IN8 can check eight optoisolated inputs with a maximum voltage of 36V.
USB interface, available with driver provided, allows device configuration.

USB DRIVERS FOR PC

To make operative IN8, the proper provided driver has to be installed on your Windows PC. This driver creates a virtual serial port, called VCP (Virtual Com Port), for each device connected which can be controlled through a simple serial protocol. Besides, the driver installs on your PC a DLL library to manage the communication directly toward the USB interface.
The driver works with Windows XP, Windows Vista and Windows 7.



DRIVER INSTALLATION

We recommend to execute the automatic software installation from CD before connecting the device to PC. By this way software and USB driver are both installed, allowing the PC to automatically identify the device once you connect it.
If you use the recommend automatic software installation from CD, you do not need to follow indications contained in this chapter.

If you do not use the recommend automatic software installation from CD, to connect IN8 to your PC you need to install only the USB IPSES driver that is certified for the most recent Microsoft operating systems:

- Microsoft Windows 2000 family
- Microsoft Windows XP family, x86
- Microsoft Windows Server 2003 family, x86
- Microsoft Windows Server 2003 family, x64
- Microsoft Windows XP family, x64
- Microsoft Windows Vista family, x86
- Microsoft Windows Vista family, x64
- Windows Server 2008 family, x86
- Windows Server 2008 family, x64

–Windows 7

- Windows 7 x64
- Windows Server 2008 Release 2 family, x64

If your PC has an Internet connection, you should follow the automatic Windows Update procedure, otherwise follow the manual installation procedure from CD.

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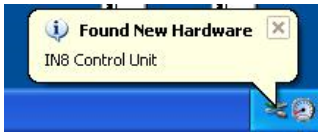
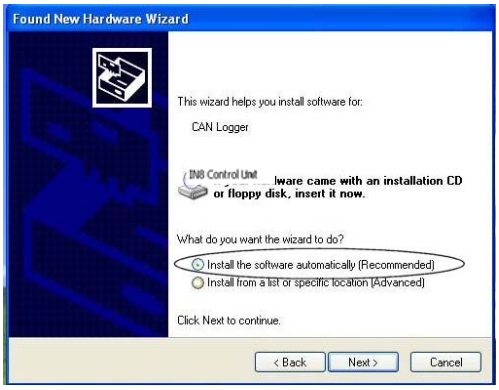
Automatic Windows Update procedure

1) Connect the IN8 board to PC using a USB cable. *Windows* operating system will detect a new device, showing a message similar to:



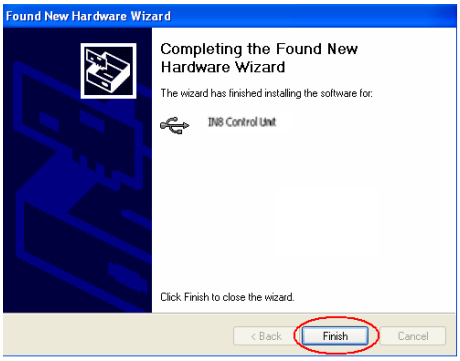
2) In the following windows “found new hardware wizard” chose “Yes, this time only” and then “Next”.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
I-069 Control Unit
Click Next to continue.
< Back
Next >
Cancel


Found New Hardware Wizard
This wizard helps you install software for:
CAN Logger
IN8 Control Unit
lware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

3) Then choose “install the software automatically (Recommended)” and then “Next”. Wait for downloading of the driver and its installation.

4) Installation is completed when the window on the left is displayed. Choose “Finish” to exit.



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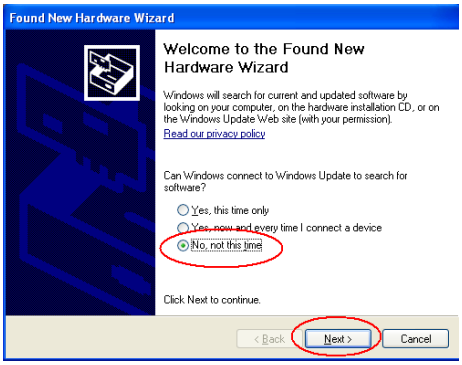
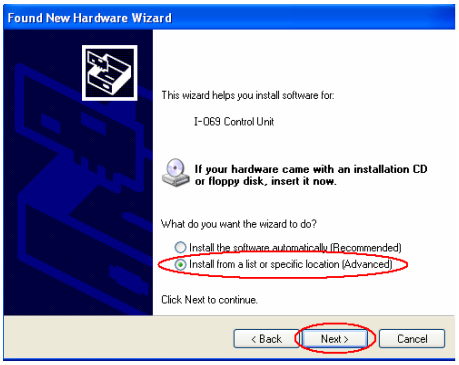
5) After a window with the message "Found New Hardware. USB Serial Port" is displayed. Follow again instruction from point 2)

Manual driver installation procedure

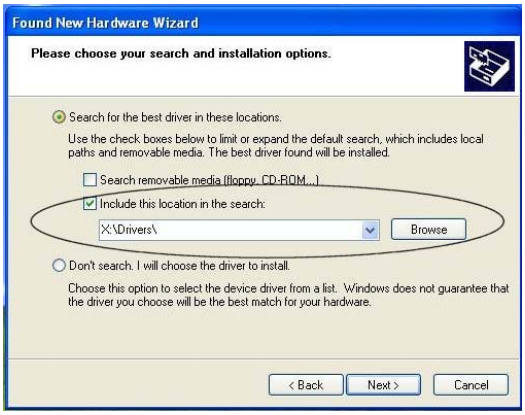
1) Connect the IN8 board to the PC using a USB cable. *Windows* operating system will detect a new device, showing the message:

2) In the following windows "found new hardware wizard" chose "No, not this time" and then "Next".


Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel


Found New Hardware Wizard
This wizard helps you install software for:
I-069 Control Unit
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

3) Then choose "install from a list or specific location (Advanced)" and "Next". Then Set the driver folder path on the CD.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
X:\Drivers\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

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Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Libra (by IPSES S.r.l.)
Click Finish to close the wizard.
< Back
Finish
Cancel

4) The Successful of the installation is indicated by the message of completing the found new hardware wizard. To end, click "Finish".

5) After installation of the hardware described above, the new device "USB Serial Port" is detected. Follow again instruction from point 2).

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REMOTE CONTROL COMMUNICATION PROTOCOL

The communication of control unit is achieved through USB interface, made up by the driver, which is provided with the unit.

Inputs are read every time system receives a character: when it occurs, it will give back another character which is the extended ASCII code of the 8 bits on the input (for example, if the 8 bits are 0101 0101, i.e. 0x55, the board will see the character "U").
In case of using a DLL low level communications library, user must refer to "DINAMIC LIBRARY FTD2XX.DLL" by IPSES.

To help user, the entire extended ASCCI table is reported below; characters after 0x80 are ISO 8859-1 code (ISO Latin-1) so, if code is different, some of them may differ from those listed below.

DEC	HEX	BIN	Symbol	Description
0	00	00000000	NUL	Null char
1	01	00000001	SOH	Start of Heading
2	02	00000010	STX	Start of Text
3	03	00000011	ETX	End of Text
4	04	00000100	EOT	End of Transmission
5	05	00000101	ENQ	Enquiry
6	06	00000110	ACK	Acknowledgement
7	07	00000111	BEL	Bell
8	08	00001000	BS	Back Space
9	09	00001001	HT	Horizontal Tab
10	0A	00001010	LF	Line Feed
11	0B	00001011	VT	Vertical Tab
12	0C	00001100	FF	Form Feed
13	0D	00001101	CR	Carriage Return
14	0E	00001110	SO	Shift Out / X-On
15	0F	00001111	SI	Shift IN / X-Off
16	10	00010000	DLE	Data Line Escape
17	11	00010001	DC1	Device Control 1 (oft. XON)
18	12	00010010	DC2	Device Control 2
19	13	00010011	DC3	Device Control 3
20	14	00010100	DC4	Device Control 4
21	15	00010101	NAK	Negative Acknowledgement
22	16	00010110	SYN	Synchronous Idle
23	17	00010111	ETB	End of Transmite Block
24	18	00011000	CAN	Cancel
25	19	00011001	EM	End of Medium
26	1A	00011010	SUB	Substitute
27	1B	00011011	ESC	Escape
28	1C	00011100	FD	File Separator
29	1D	00011101	GS	Group Separator
30	1E	00011110	RS	Record Separator
31	1F	00011111	US	Unit Separator
32	20	00100000		Space
33	21	00100001	!	Exclamation mark
34	22	00100010	"	Double quotes (or speech marks)
35	23	00100011	#	Number
36	24	00100100	$	Dollar
37	25	00100101	%	Procenttecken

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38	26	00100110	&	Ampersand
39	27	00100111	'	Single quote
40	28	00101000	(	Open parenthesis (or open bracket)
41	29	00101001	)	Close parenthesis (or close bracket)
42	2A	00101010	*	Asterisk
43	2B	00101011	+	Plus
44	2C	00101100	,	Comma
45	2D	00101101	-	Hyphen
46	2E	00101110	.	Period, dot or full stop
47	2F	00101111	/	Slash or divide
48	30	00110000	0	Zero
49	31	00110001	1	One
50	32	00110010	2	Two
51	33	00110011	3	Three
52	34	00110100	4	Four
53	35	00110101	5	Five
54	36	00110110	6	Six
55	37	00110111	7	Seven
56	38	00111000	8	Eight
57	39	00111001	9	Nine
58	3A	00111010	:	Colon
59	3B	00111011	;	Semicolon
60	3C	00111100	<	Less than (or open angled bracket)
61	3D	00111101	=	Equals
62	3E	00111110	>	Greater than (or close angled brackey)
63	3F	00111111	?	Question mark
64	40	01000000	@	At symbol
65	41	01000001	A	Uppercase A
66	42	01000010	B	Uppercase B
67	43	01000011	C	Uppercase C
68	44	01000100	D	Uppercase D
69	45	01000101	E	Uppercase E
70	46	01000110	F	Uppercase F
71	47	01000111	G	Uppercase G
72	48	01001000	H	Uppercase H
73	49	01001001	I	Uppercase I
74	4A	01001010	J	Uppercase J
75	4B	01001011	K	Uppercase K
76	4C	01001100	L	Uppercase L
77	4D	01001101	M	Uppercase M
78	4E	01001110	N	Uppercase N
79	4F	01001111	O	Uppercase O
80	50	01010000	P	Uppercase P
81	51	01010001	Q	Uppercase Q
82	52	01010010	R	Uppercase R
83	53	01010011	S	Uppercase S
84	54	01010100	T	Uppercase T
85	55	01010101	U	Uppercase U
86	56	01010110	V	Uppercase V
87	57	01010111	W	Uppercase W
88	58	01011000	X	Uppercase X
89	59	01011001	Y	Uppercase Y
90	5A	01011010	Z	Uppercase Z
91	5B	01011011	[	Opening bracket
92	5C	01011100	\	Backslash
93	5D	01011101	]	Closing bracket
94	5E	01011110	^	Caret – circumflex

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95	5F	01011111	_	Underscore
96	60	01100000	`	Grave accent
97	61	01100001	a	Lowercase a
98	62	01100010	b	Lowercase b
99	63	01100011	c	Lowercase c
100	64	01100100	d	Lowercase d
101	65	01100101	e	Lowercase e
102	66	01100110	f	Lowercase f
103	67	01100111	g	Lowercase g
104	68	01101000	h	Lowercase h
105	69	01101001	i	Lowercase i
106	6A	01101010	j	Lowercase j
107	6B	01101011	k	Lowercase k
108	6C	01101100	l	Lowercase l
109	6D	01101101	m	Lowercase m
110	6E	01101110	n	Lowercase n
111	6F	01101111	o	Lowercase o
112	70	01110000	p	Lowercase p
113	71	01110001	q	Lowercase q
114	72	01110010	r	Lowercase r
115	73	01110011	s	Lowercase s
116	74	01110100	t	Lowercase t
117	75	01110101	u	Lowercase u
118	76	01110110	v	Lowercase v
119	77	01110111	w	Lowercasew
120	78	01111000	x	Lowercasex
121	79	01111001	y	Lowercasey
122	7A	01111010	z	Lowercase z
123	7B	01111011	{	Opening brace
124	7C	01111100	|	Vertical bar
125	7D	01111101	}	Closing brace
126	7E	01111110	~	Equivalency sign – tilde
127	7F	01111111		Delete
128	80	10000000	€	Euro sign
129	81	10000001		
130	82	10000010	‚	Single low-9 quotation mark
131	83	10000011	ƒ	Latin small letter f with hook
132	84	10000100	„	Double low-9 quotation mark
133	85	10000101	…	Horizontal ellipsis
134	86	10000110	†	Dagger
135	87	10000111	‡	Double dagger
136	88	10001000	ˆ	Modifier letter circumflex accent
137	89	10001001	‰	Per mille sign
138	8A	10001010	Š	Latin capital letter S with caron
139	8B	10001011	‹	Single left-pointing angle quotation
140	8C	10001100	Œ	Latin capital ligature OE
141	8D	10001101		
142	8E	10001110	Ž	Latin captial letter Z with caron
143	8F	10001111		
144	90	10010000		
145	91	10010001	‘	Left single quotation mark
146	92	10010010	’	Right single quotation mark
147	93	10010011	“	Left double quotation mark
148	94	10010100	”	Right double quotation mark
149	95	10010101	•	Bullet
150	96	10010110	–	En dash
151	97	10010111	—	Em dash

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152	98	10011000	˜	Small tilde
153	99	10011001	™	Trade mark sign
154	9A	10011010	š	Latin small letter S with caron
155	9B	10011011	›	Single right-pointing angle quotation mark
156	9C	10011100	œ	Latin small ligature oe
157	9D	10011101		
158	9E	10011110	ž	Latin small letter z with caron
159	9F	10011111	Ÿ	Latin capital letter Y with diaeresis
160	A0	10100000		Non-breaking space
161	A1	10100001	¡	Inverted exclamation mark
162	A2	10100010	¢	Cent sign
163	A3	10100011	£	Pound sign
164	A4	10100100	¤	Currency sign
165	A5	10100101	¥	Yen sign
166	A6	10100110	¦	Pipe, Broken vertical bar
167	A7	10100111	§	Section sign
168	A8	10101000	¨	Spacing diaeresis - umlaut
169	A9	10101001	©	Copyright sign
170	AA	10101010	ª	Feminine ordinal indicator
171	AB	10101011	«	Left double angle quotes
172	AC	10101100	¬	Not sign
173	AD	10101101		Soft hyphen
174	AE	10101110	®	Registered trade mark sign
175	AF	10101111	¯	Spacing macron - overline
176	B0	10110000	°	Degree sign
177	B1	10110001	±	Plus-or-minus sign
178	B2	10110010	²	Superscript two - squared
179	B3	10110011	³	Superscript three - cubed
180	B4	10110100	´	Acute accent - spacing acute
181	B5	10110101	µ	Micro sign
182	B6	10110110	¶	Pilcrow sign - paragraph sign
183	B7	10110111	·	Middle dot - Georgian comma
184	B8	10111000	¸	Spacing cedilla
185	B9	10111001	¹	Superscript one
186	BA	10111010	º	Masculine ordinal indicator
187	BB	10111011	»	Right double angle quotes
188	BC	10111100	¼	Fraction one quarter
189	BD	10111101	½	Fraction one half
190	BE	10111110	¾	Fraction three quarters
191	BF	10111111	¿	Inverted question mark
192	C0	11000000	À	Latin capital letter A with grave
193	C1	11000001	Á	Latin capital letter A with acute
194	C2	11000010	Â	Latin capital letter A with circumflex
195	C3	11000011	Ã	Latin capital letter A with tilde
196	C4	11000100	Ä	Latin capital letter A with diaeresis
197	C5	11000101	Å	Latin capital letter A with ring above
198	C6	11000110	Æ	Latin capital letter AE
199	C7	11000111	Ç	Latin capital letter C with cedilla
200	C8	11001000	È	Latin capital letter E with grave
201	C9	11001001	É	Latin capital letter E with acute
202	CA	11001010	Ê	Latin capital letter E with circumflex
203	CB	11001011	Ë	Latin capital letter E with diaeresis
204	CC	11001100	Ì	Latin capital letter I with grave
205	CD	11001101	Í	Latin capital letter I with acute
206	CE	11001110	Î	Latin capital letter I with circumflex
207	CF	11001111	Ï	Latin capital letter I with diaeresis
208	D0	11010000	Ð	Latin capital letter ETH

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209	D1	11010001	Ñ	Latin capital letter N with tilde
210	D2	11010010	Ò	Latin capital letter O with grave
211	D3	11010011	Ó	Latin capital letter O with acute
212	D4	11010100	Ô	Latin capital letter O with circumflex
213	D5	11010000	Õ	Latin capital letter O with tilde
214	D6	11010000	Ö	Latin capital letter O with diaeresis
215	D7	11010000	×	Multiplication sign
216	D8	11010000	Ø	Latin capital letter O with slash
217	D9	11010000	Ù	Latin capital letter U with grave
218	DA	11010000	Ú	Latin capital letter U with acute
219	DB	11010000	Û	Latin capital letter U with circumflex
220	DC	11010000	Ü	Latin capital letter U with diaeresis
221	DD	11010000	Ý	Latin capital letter Y with acute
222	DE	11010000	Þ	Latin capital letter THORN
223	DF	11010000	ß	Latin small letter sharp s - ess-zed
224	E0	11100000	à	Latin small letter a with grave
225	E1	11100001	á	Latin small letter a with acute
226	E2	11100010	â	Latin small letter a with circumflex
227	E3	11100011	ã	Latin small letter a with tilde
228	E4	11100100	ä	Latin small letter a with diaeresis
229	E5	11100101	å	Latin small letter a with ring above
230	E6	11100110	æ	Latin small letter ae
231	E7	11100111	ç	Latin small letter c with cedilla
232	E8	11101000	è	Latin small letter e with grave
233	E9	11101001	é	Latin small letter e with acute
234	EA	11101010	ê	Latin small letter e with circumflex
235	EB	11101011	ë	Latin small letter e with diaeresis
236	EC	11101100	ì	Latin small letter i with grave
237	ED	11101101	í	Latin small letter i with acute
238	EE	11101110	î	Latin small letter i with circumflex
239	EF	11101111	ï	Latin small letter i with diaeresis
240	F0	11110000	ð	Latin small letter eth
241	F1	11110001	ñ	Latin small letter n with tilde
242	F2	11110010	ò	Latin small letter o with grave
243	F3	11110011	ó	Latin small letter o with acute
244	F4	11110100	ô	Latin small letter o with circumflex
245	F5	11110101	õ	Latin small letter o with tilde
246	F6	11110110	ö	Latin small letter o with diaeresis
247	F7	11110111	÷	Division sign
248	F8	11111000	ø	Latin small letter o with slash
249	F9	11111001	ù	Latin small letter u with grave
250	FA	11111010	ú	Latin small letter u with acute
251	FB	11111011	û	Latin small letter u with circumflex
252	FC	11111100	ü	Latin small letter u with diaeresis
253	FD	11111101	ý	Latin small letter y with acute
254	FE	11111110	þ	Latin small letter thorn
255	FF	11111111	ÿ	Latin small letter y with diaeresis

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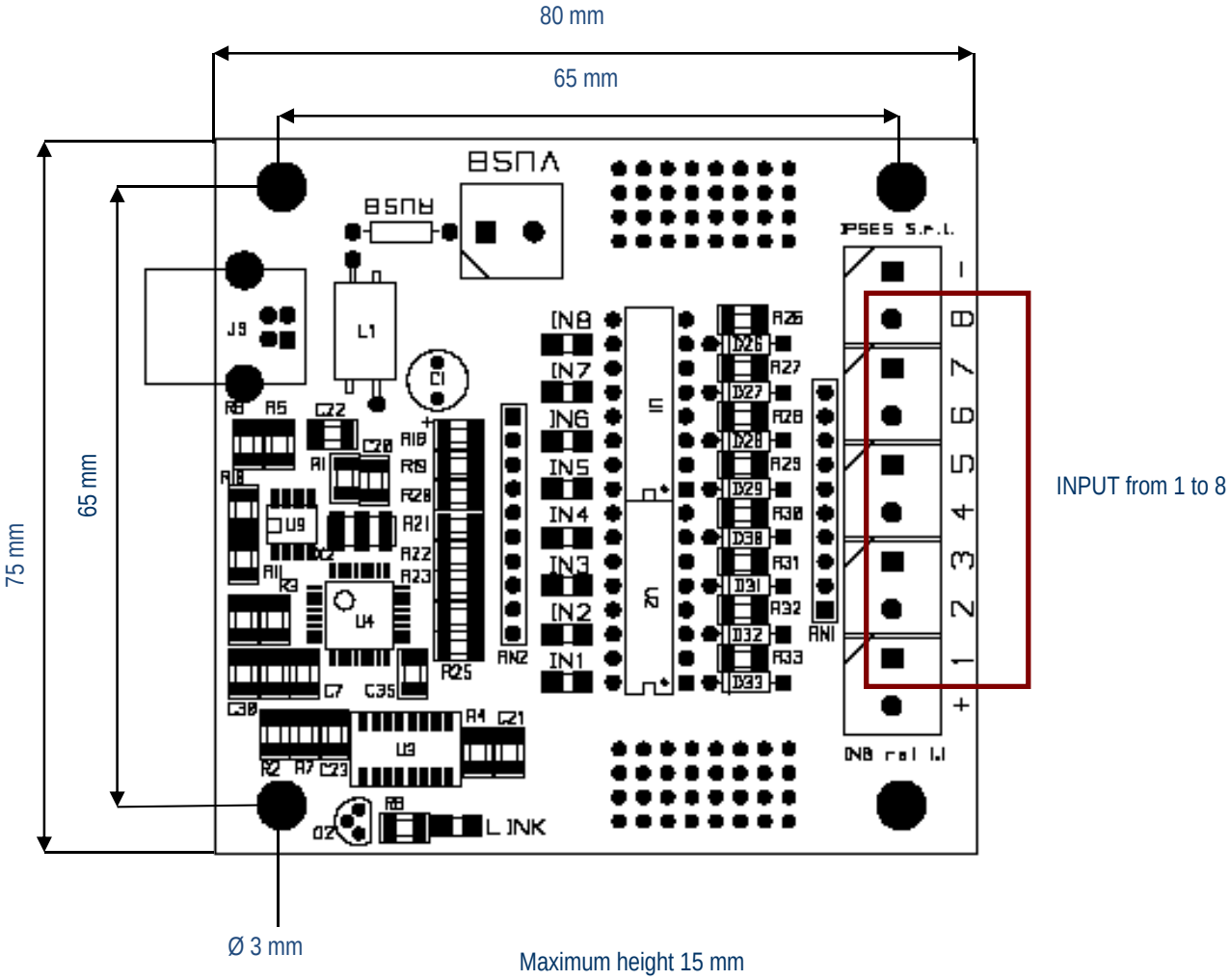
LAYOUT

The following picture shows IN8 layout: the eight inputs, from 1 to 8, are opto-isolated.



Picture 1: IN8 layout.

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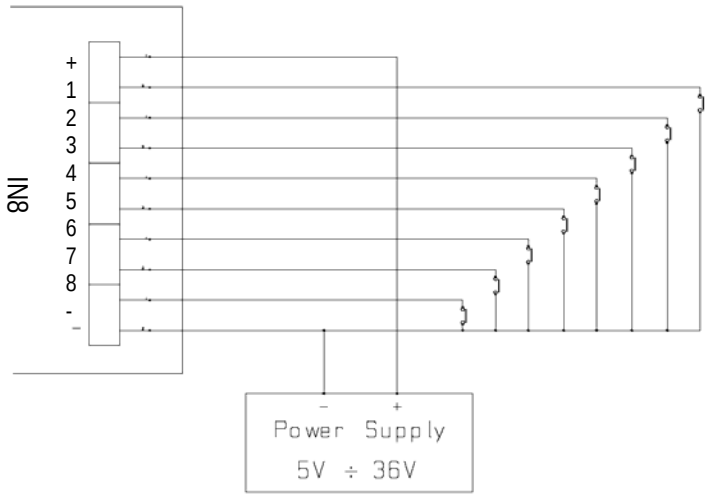
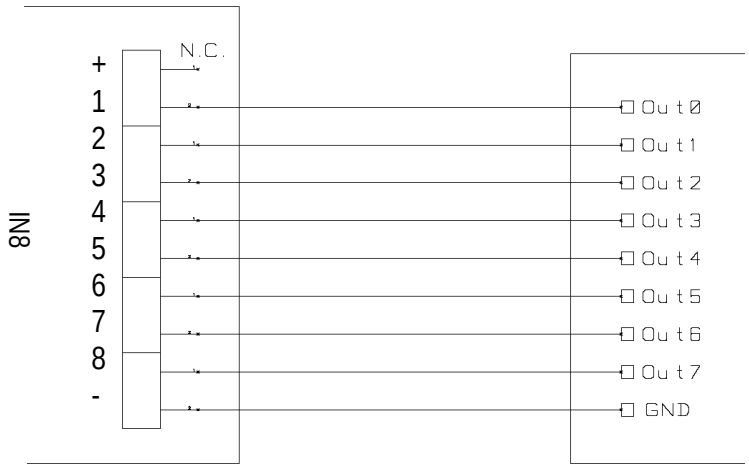
INPUT

The eight inputs are completely isolated with other signals on the device.

We suggest to connect inputs following one of the diagrams displayed below:
-Picture 2a: use this way in case inputs have to detect the pression of a switch or an open collector output.
-Picture 2b: use this way in case inputs are directly controlled by a voltage.



Picture 2a: diagram of input implementation.



Picture 2b: diagram of input implementation.

Input status is displayed by LED placed near every connector (LED form IN1 to IN8, showed in Picture 1).

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DEMO SOFTWARE

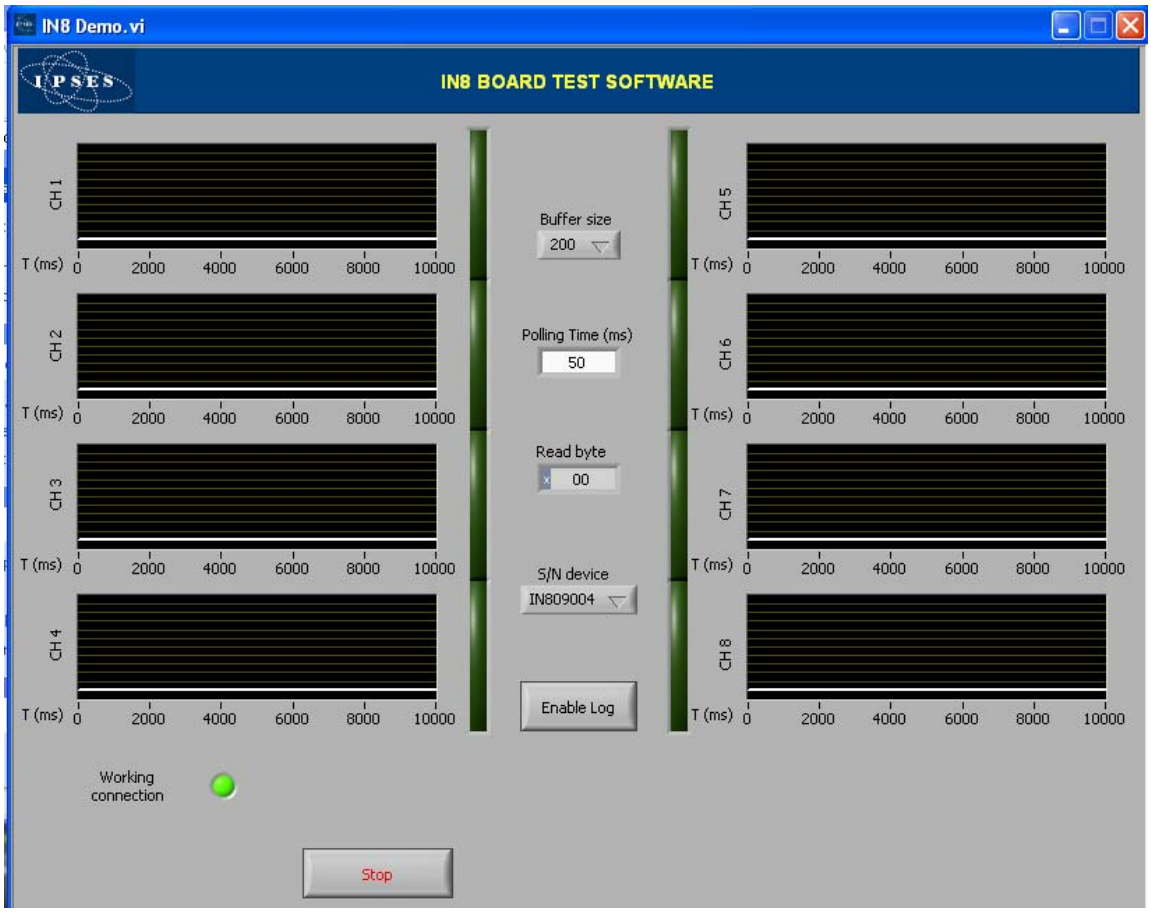
IN8_Demo is a demo software which allows IN8 device remote control testing. With this software it is possible to manage more devices contemporarily connected to PC. The displayed virtual control panel has intuitive functionalities which make you easy understand how it works.

INSTALLATION

To install the software on your PC, execute "Setup.exe" and follow instructions displayed. Default destination folder of the executable file "IN8_Demo.exe" is "C:\Program Files\IN8_Demo".

EXECUTION

Execute "IN8_Demo.exe". Virtual control panel is displayed as shown in Picture 3:



Picture 3: virtual control panel.

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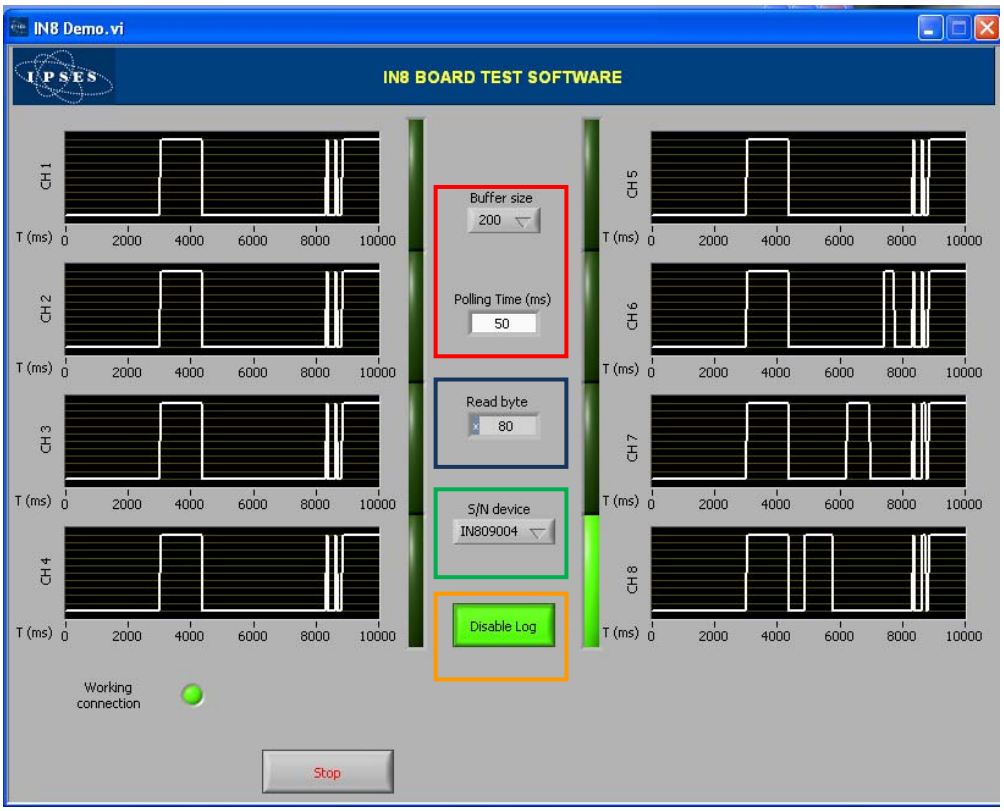
FUNCTIONALITIES

Virtual control panel is structured to make you easy understand implemented control functions.



Picture 4: virtual control panel during acquisition routine.

In the window are present 8 temporal diagram (from CH 1 to CH 8) representing the temporal status evolution of every input. There are eight lighted controls next to the diagram which indicates status of pin (instantaneous).
The *Exit to Windows* button alts the program execution and closes the current window.
The *Connect* button starts the program execution and if the initialization phase complete successfully the Working connection led light turns on, as shown in Picture 4.
The *S/N device* ring menu, surrounded by light blue rectangle, allows to select the current device.
The *Read Byte* indicator, surrounded by blue rectangle, shows the instantaneous inputs status in hexadecimal format.
The *Buffer size* and *Polling Time* fields, surrounded by red rectangle, defined the sample array dimension for every input and the time interval between two consecutive sampling respectively. The sample array dimension can be of 20, 50, 100 or 200 sample, while the polling time can be in the range from 50ms to 1000ms. The set polling time must always be a multiple of 50 ms, otherwise the program will round it to the nearest value. These values can be modified during program execution and its consequence will be the update of the graphic time scale.

The software is equipped with a log function. To start or stop this function, use the Log Enable/ Log Disable button, surrounded in orange in Picture 4. When this feature is enabled, the button will turn on, and you can save into a .txt file the status of all inputs once a change in their status is detected, recording the date, time and status (in hexadecimal). For instance:

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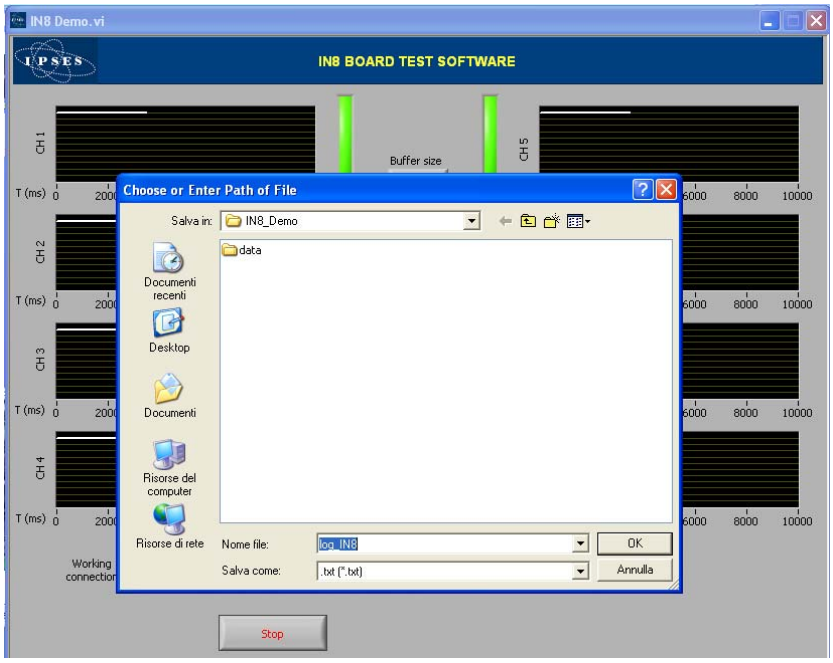
25/10/2010 - 16:30:12 - 0x32
25/10/2010 - 16:34:42 - 0x30
25/10/2010 - 16:41:32 - 0x20
25/10/2010 - 16:44:12 - 0x00



Picture 5: pop-up window to choose path and .txt file name for log function report

When you enable this function, the program will ask the name of the file where saving data (see Picture 5), then this will remain the same for all the following recordings until you restart the software.

Because the created file will be a simple .txt, its release can be handled simply with *notepad*, *Word* or any other text viewer. To disable the Log function, click on the relevant button.

The *Stop* button stops the current session and reset the program into the initial condition, as shown in Picture 3.

In case of error the status, code and error message fields will appear, according to the occurred error, as shown in Picture 6. The operational program recovery is performed only with the *Reset Error* button.

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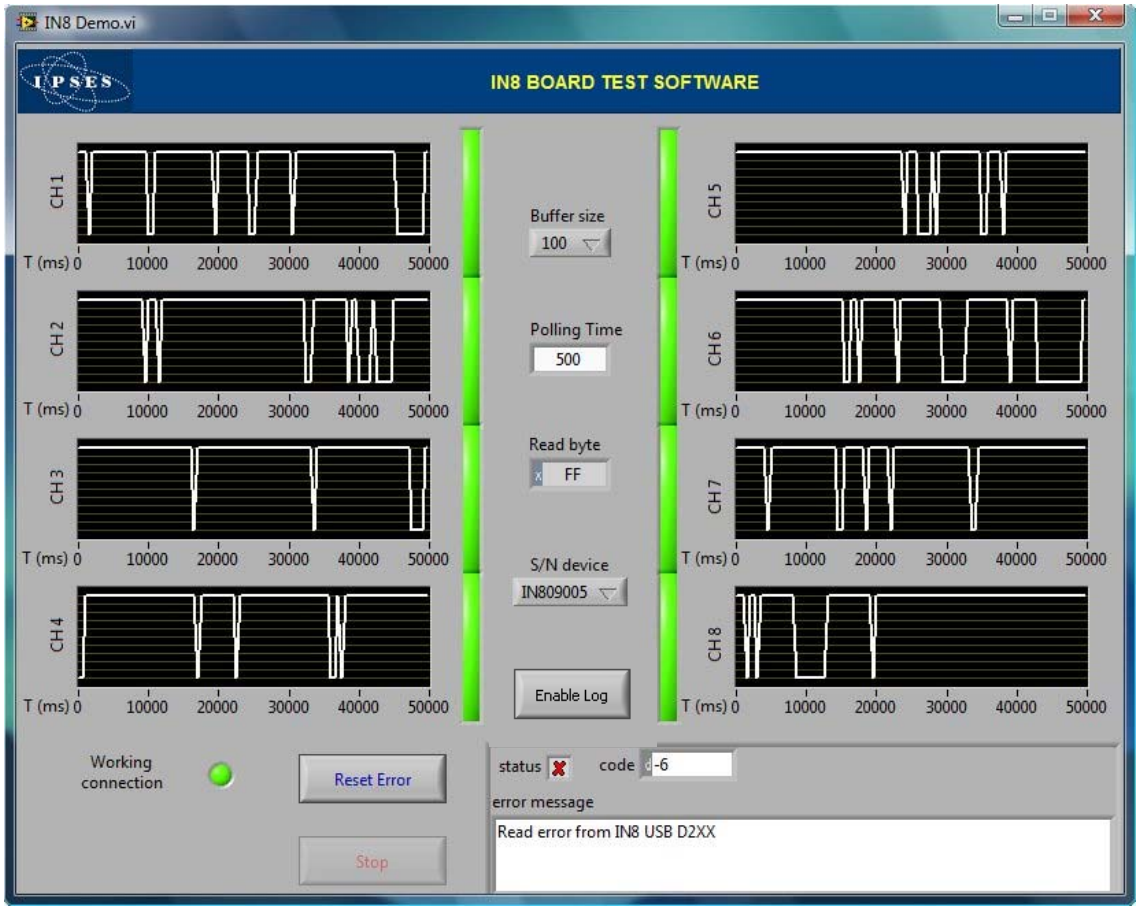

Picture 6: error status.

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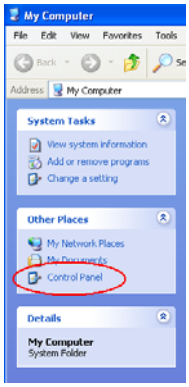
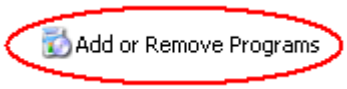
REMOVAL

To correctly remove the software, follow the instructions listed below.



1) From Desktop, click “My Computer” icon and choose “Control Panel”.



2) Click “Add or Remove Programs” from the resource list displayed.

3) From program installed list, select “IN8_Demo” and proceed removal with “Change/Remove”.

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Example using the DLL

The following example allows to open the communication (to the device indexed by device_index=0) and to read the eight inputs:

```
// Variables definition
unsigned long ftStatus = 0, ftHandle = 0;
unsigned long TxBytes = 0, RxBytes = 0, EventNode = 0, BytesWritten = 0, BytesReceived = 0;
char TxBuffer [16] = " ";
char RxBuffer [256] = " ";
UCHAR p1,p2;

        p1=0;
        p2=0;

// Open Device Communication to  0 indexed device and sets its communication parameters
        ftStatus = FT_Open (0, &ftHandle);
        if (ftStatus != FT_OK)
        {
                //Error on opening procedure
        }
        else
        {
                ftStatus = FT_SetBaudRate (ftHandle, 9600);
                if (ftStatus != FT_OK)
                {
                        //Error on setting baud rate procedure
                }
                else
                {
                        ftStatus = FT_SetDataCharacteristics (ftHandle, FT_BITS_8, FT_STOP_BITS_1,
                                FT_PARITY_NONE );
                        if (ftStatus != FT_OK)
                        {
                                //Error on setting data characteristics  procedure
                        }
                        else
                        {
                                ftStatus = FT_SetFlowControl (ftHandle, FT_FLOW_NONE,p1, p2);
                                if (ftStatus != FT_OK)
                                {
                                        //Error on setting flow control  procedure
                                }
                                else
                                {
                                        ftStatus = FT_SetTimeouts (ftHandle, 500, 300);
                                        if (ftStatus != FT_OK)
                                        {
                                                //Error on setting timeout procedure
                                        }
```


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```
                                        else
                                        {
                                                //Opening procedure successfully completed
                                        }
                                }
                        }
                }
        }

//Get status
        TxBuffer = "u/r";
        ftStatus = FT_Write (ftHandle, TxBuffer, 2, &BytesWritten);
        if (ftStatus != FT_OK)
        {
                //Write error
        }
        else
        {
                FT_GetQueueStatus (ftHandle, &RxBytes);
                if (RxBytes >0 )
                {
                        ftStatus = FT_Read(ftHandle, RxBuffer, RxBytes, &BytesReceived);
                        if (ftStatus == FT_OK)
                        {
                                // Status successfully reading
                        }
                        else
                        {
                                // Error reading
                        }
                }
        }

//Close device
        FT_Close (ftHandle);
```


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TECNICAL FEATURES

Power supply: self powered through USB.

Working Temperature: from 0°C to +60°C.

Storing Temperature: from -40°C to +85°C.

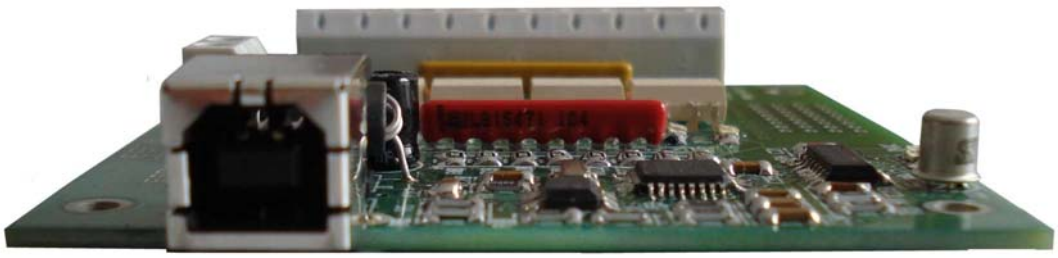
Inputs: eight optoisolated inputs, each of them supporting positive voltage up to 36Vdc.

average read input time execution 15ms

Maximum reverse input voltage: 5Vdc.

USB: 1 USB port type B, compatible with USB2.0

Dimension of the board: 75 x 80 mm (2,95 x 3,15 inches)



PRODUCT CODE

Code	Description
IN8	Control board with 8 inputs
IN8Library	LabView 8.6 library
USB-A-B	USB cable for board linking
USB-A-B-ill	USB cable for board linking, with enlighted end

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OTHER AVAILABLE I/O CARDS

IO-69: Input/output Card with 6 inputs and 9 relay outputs and USB interface

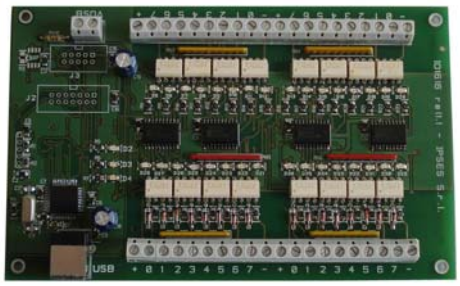
IO-69-USB is a self-powered card to manage six optocoupled inputs and nine relay outputs with USB interface.

A timeout control allows to protect the connecting devices, turning off all the outputs if it does not receive commands from the host within a time configurable through software.

Furthermore, there is the possibility to program all the outputs so that each one will activate only when inputs reach assigned conditions: in this case, **IO- 69** acts like a programmable logic controller (PLC).

The card is produced in two versions: with single pole double throw relay (SPDT) and with single pole single throw relay (SPST).

IO-1616: Input/output Card with 16 inputs and 16 outputs and USB interface

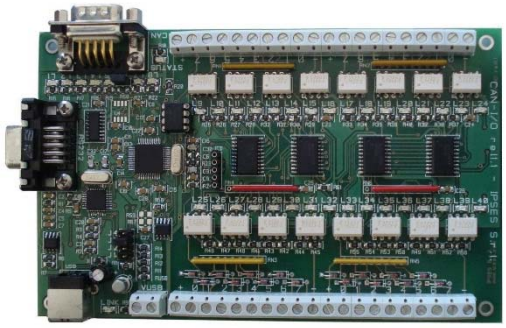


IO1616 is a self powered card to manage sixteen optoisolated inputs and sixteen optoisolated outputs with USB interface.

IO1616 can be directly connected to PLC, to input devices from operator and to other I/O systems.

On request, an integrated temperature sensor allows to know in real time the temperature of the system IO1616 is placed in.

CAN-IO: Input/output Card with 16 inputs and 16 outputs with CAN, USB and RS232 interface



CAN-IO is a control unit equipped with CAN, USB and RS232 interfaces to manage sixteen optocoupled inputs and outputs. The card can work as standalone device on CAN BUS. Its configuration is achieved either through USB (in this case the board is self powered) or through RS232 interface. Easy to use and to configure, thanks to the provided *software*, **CAN-IO** is the right answer to the need to acquire and to drive digital signals through already existing CAN bus.

CAN-IO can be directly connected to PLC, to input devices by operator and to other I/O systems.

Each input and output status can be read by a field bus at any moment. Besides, thanks to LEDs fixed on, the status is shown directly on the board. An integrated temperature sensor allows to know in real time the temperature of the system CAN-IO is placed in.

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WEB-IO: ***Input/output Card with 16 inputs and 16 outputs, Ethernet interface, integrated WEB and telnet servers and SNMP client***

WEB-IO is a card to manage sixteen optocoupled inputs and sixteen optocoupled outputs with Ethernet interface, equipped with a WEB and a telnet servers and a SNMP client. The WEB server allows to connect and to manage the card using any WEB browser (i. e. Internet Explorer or Firefox), with no needs to install a software on your PC. Beside, the card can be connected directly to a switch or to a router with no need to use a PC. It is also possible to develop a customized software managed by telnet service or SNMP client.

WEB-IO can be directly connected to PLC, to input devices from operator and to other I/O systems. Each input and output status can be read by a web browser or a telnet client at any moment, besides it is shown directly on the board thanks to LEDs fixed on. On request, the card can be equipped with an integrated **temperature sensor** which allows to monitor in real time the temperature around the regulator voltage module. Through expansion connectors the card can be interfaced to a **RTCLOG** (Real Time Clock and Logger) **optional module**: by this way, it can perform a log of the I/O states on a dedicated memory. **The card is available in two models**: with power supply voltage from 5V up to 9V and with power supply voltage from 7V up to 15V. WEB-IO is provided with a demo software for Windows environment, based on telnet service.

WEB-IO-WiFi: Input/output Card with 16 inputs and 16 outputs, Ethernet and WiFi interfaces, integrated WEB and telnet servers and SNMP client

WEB-IO-WiFi is a card to manage sixteen optocoupled inputs and sixteen optocoupled outputs with Ethernet and WiFi interfaces, equipped with a WEB and a telnet servers and a SNMP client. The WEB server allows to connect and to manage the card using any WEB browser (i. e. Internet Explorer or Firefox), with no needs to install a software on your PC. Beside, the card can be connected directly to a switch or to a router, by this way it can be accessed by any PC connected to Internet. It is also possible to develop a customized software managed by telnet service or SNMP client. The board is available with built-in antenna or with ultra miniature coaxial (U.FL) connector for external antenna connection.

WEB-IO-WiFi can be directly connected to PLC, to input devices from operator and to other I/O systems. Each input and output status can be read by a web browser or a telnet client at any moment, besides it is shown directly on the board thanks to LEDs fixed on. On request, the card can be equipped with an integrated **temperature sensor** which allows to monitor in real time the temperature around the regulator voltage module.

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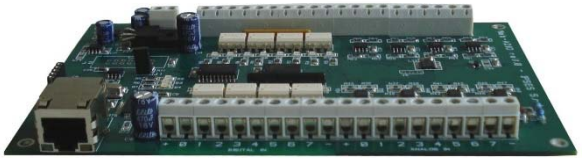
WEB-ADIO: ***Input/output Card with 8 analogical inputs, 8 digital inputs, 8 analogical outputs and 8 digital outputs, Ethernet interface, integrated WEB and telnet servers and SNMP client***

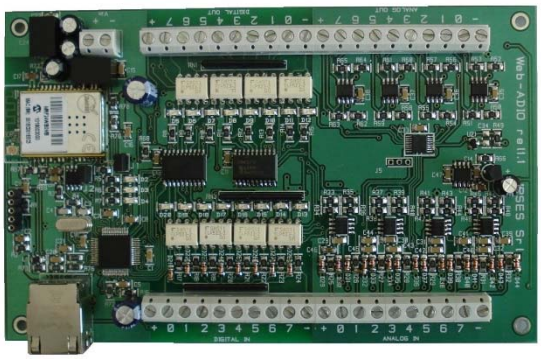


WEB-ADIO is a card to manage 8 optocoupled digital inputs, 8 analogical inputs, 8 optocoupled digital outputs and 8 analogical outputs with Ethernet interface, equipped with a WEB and a telnet servers and a SNMP client. The WEB server allows to connect and to manage the card using any web browser (i. e. Internet Explorer and Firefox), with no needs to install a software on your PC Beside, the card can be connected directly to a switch or to a router with no need to use a PC. It is also possible to develop a customized software managed by telnet service.

WEB-ADIO can be directly connected to PLC or to analogical transducer, to input devices from operator and to other I/O systems.

The analogical inputs and outputs have an operative voltage from 0V to 10V, with a resolution of 10mV and are calibrated one by one. Each input and output status can be read by a WEB browser or a telnet client at any moment, besides, the status of digital inputs and outputs it is shown directly on the board thanks to LEDs fixed on. On request, the card can be equipped with an integrated temperature sensor which allows to monitor in real time the temperature around the regulator voltage module.

WEB-ADIO-WiFi: Input/output Card with 8 analogical inputs, 8 digital inputs, 8 analogical outputs and 8 digital outputs, Ethernet and WiFi interfaces, integrated WEB and telnet servers and SNMP client



WEB-ADIO-WiFi is a card to manage 8 optocoupled digital inputs, 8 analogical inputs, 8 optocoupled digital outputs and 8 analogical outputs with Ethernet and WiFi interfaces, equipped with a WEB and a telnet servers and a SNMP client. The WEB server allows to connect and to manage the card using any web browser (i. e. Internet Explorer and Firefox), with no needs to install a software on your PC Beside, the card can be connected directly to a switch or to a router with no need to use a PC. The board is available with built-in antenna or with ultra miniature coaxial (U.FL) connector for external antenna connection.

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The analogical inputs and outputs have an operative voltage from 0V to 10V, with a resolution of 10mV and are calibrated one by one.

WEB-ADIO-WiFi can be directly connected to PLC or to analogical transducer, to input devices from operator and to other I/O systems. Each input and output status can be read by a WEB browser or a telnet client at any moment, besides, the status of digital inputs and outputs it is shown directly on the board thanks to LEDs fixed on.

For further details, please consult our website: *http://www.ipses.com.*

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CONTACTS

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Our pool consists of highly competent professionals whose experience in this field is extremely strong. Thanks to constant updating and technical development, IPSES is a leading company, combining the dynamism of a young group into the competence and reliability of a qualified staff.

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SUPPORT INFORMATION

The customer is at liberty to contact the relevant engineer at IPSES S.r.l. directly.

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Fax	:	(+39) 02 700403170
Email	:	support@ipses.com

PROBLEM REPORT

The next page is a standard template used for reporting system problems. It can be copied and send as a fax. Alternative bugs may be reported by emails, in this case please insure that the mail contains similar information listed in the *Engineering Problem Report* form.

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ENGINEERING PROBLEM REPORT

Problem describer

Name			**IPSES s.r.l.** **Via Suor Lazzarotto, 10** **Cesate (MI)** **Italy** **Fax (+39) 02 700403170** **e-mail *support@ipses.com***
Company			
Date	Tel.	Fax	

Product

Name	Version	Serial No.

Report Type (bug, change request or technical problem)

Major bug	☐	Urgency:	
Minor bug	☐	High	☐
Change request	☐	Medium	☐
Technical problem	☐	Low	☐

Problem Description

Reproduction of Problem

IPSES s.r.l. Action notes

Received by	Date	Report No.	Action

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(Product code IN8 Rel. 01.04.0001)

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